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Assistant Commissioner for Patents
Washington, D.C. 20231

By: Maisie C. Livengood
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

William J. Dower, et al.

Application No.: 09/661,927

Filed: September 14, 2000

For: SUBSTRATES AND SCREENING METHODS FOR TRANSPORT PROTEINS

Examiner: Unknown

Art Unit: 1632

AMENDMENT AND RESPONSE TO RESTRICTION REQUIREMENT

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

In response to the Restriction Requirement mailed December 18, 2001, Applicants respectfully request consideration of the remarks set forth herein. A response was originally due January 18, 2002. Applicants submit herewith a Petition for Extension of Time to extend the time to reply to the Restriction Requirement for four months to May 18, 2002. Accordingly, this response is timely filed.

AMENDMENT

Please amend the claims as follows without prejudice or disclaimer. A "Version with Markings to Show Changes Made" is attached hereto to show the changes to the claims.

Please amend claim 25 as follows:

25. (Once amended) The method of claim 1, wherein

the population of cells comprise different cells that are located in a single reaction vessel;

contacting results in at least one complex being bound to or internalized within one of the cells; and

A1

detecting comprises detecting the signal from the at least one complex.

Please amend claim 26 as follows:

26. (Once amended) The method of claim 25, wherein

the different cells comprise test cells and counterpart control cells, the test cells expressing one of the one or more carrier-type transport proteins while the control cells fail to express the transport protein expressed by the test cells;

the at least one complex is bound to or internalized within one of the test cells; and

detecting further comprises detecting signal, if any, from the control cells.

Please amend claim 43 as follows:

43. (Once amended) The method of claim 42, wherein the reporter is attached to the compound of the at least one complex at an attachment site and the pharmaceutical agent replaces the reporter in the modified complex such that the pharmaceutical agent is attached to the attachment site in the modified complex.

A2

Please amend claim 53 as follows:

53. (Once amended) The method of claim 1, wherein the cells of the population of cells is selected from the group consisting of Chinese hamster ovary (CHO)

A3

A3 cells, VERO cells, HeLA cells, COS-7 cells, MDCK cells, HEK cells, CaCo-2 cells, HCT-8 cells, T84 cells and HT29 cells.

Please amend claim 55 as follows:

A4 55. (Once amended) The method of claim 1, wherein the compound is directly joined to the reporter via a chemical bond.

RESPONSE TO RESTRICTION REQUIREMENT

In response to the Restriction Requirement, Applicants elect with traverse Group I, including claims 1-68.

The election is made with traverse because Applicants respectfully submit that the claims in at least Groups I-V should be examined together, as the claims within these groups are drawn to related subject matter. This is evidenced first by the fact that all the claims in Groups I-V are drawn to methods of screening for carrier-type transport proteins and/or ligands and/or substrates. The Examiner states (see, e.g., paragraph 5) that certain groups within Groups I-V are unrelated because claims in some groups are drawn to methods of screening for carrier-type proteins and/or ligands, whereas the claims in other groups are drawn to methods of screening for carrier-type proteins and/or substrates. The difference between ligands and substrates does not justify the conclusion that the groups of claims are unrelated. As defined in the specification, the term "ligand" is defined in the specification to encompass "substrates," and additionally "other compounds that bind to the transport protein without being taken up or transported through a cell" (see, p. 10, lines 27-29). Thus, "substrates" are a subset of the compounds within the class of "ligands." As such, when examining the elected claims within Group I which are drawn to methods of identifying "ligands," the Examiner will necessarily have to examine methods designed to identify "substrates" (e.g., claims within Groups II and V).

The relatedness of the claims is further evidenced by the fact that all the claims in each of Groups I-V are classified by the Examiner as being not only in the same

class, but in the same subclass as well. Furthermore, the similarity in the steps involved in the claims in the different groups shows the relatedness in subject matter.

Thus, it is submitted that the search for art that is relevant with respect to elected Group I claims will be substantially the same as the search for art in Groups II-V in view of the foregoing evidence demonstrating the relatedness between the claims within these groups. Indeed, the classification of all the claims within the same class and subclass indicates that a single search to cover the claims in all these Groups can be conducted. In view of the foregoing reasons showing that there would not be an undue burden on the Office in conducting a search on the claims in Groups I-V, it is respectfully requested that the Office at least examine the claims in Groups I-V.

RESPONSE TO SPECIES ELECTION REQUIREMENT

The Office further states that if the claims of Group I are elected that Applicants must elect a single species with respect to 21 different elements of the claims. As an initial matter, Applicants note that the requirement that an election be made with respect to such a large number of species does not appear consistent with usual practice. As a specific example, in accordance with MPEP §803.02, the Officer cannot require an election of a single species prior to examination on the merits if the members of a Markush-type claim, such as claims 15, 38, 49, 50 53 and 59 from elected Group I, are sufficiently few in number or so closely related that a search and examination of the entire claim can be made without undue burden. It is respectfully submitted that in each of these Markush claims the number of members within the claim are sufficiently few in number and/or so closely related that it would not be an undue burden on the Office to examine each of the members of these groups in the initial examination. Furthermore, as discussed in greater detail below, the Office is requiring an election of species in certain claims when an election cannot be made.

While Applicants respond to the election of species requirement below, it is the understanding of the Applicants that the Examiner will follow the procedure set forth in MPEP §809.02(c), which provides for a complete action on the merits of all

claims readable on the elected species, and in MPEP §803.02, whereby upon the finding of allowable species, examination will continue with the non-elected species until all species have been examined or a non-allowable species is found.

Turning now to the required species elections, Applicants elect as follows using the numbering of the Examiner on pages 6-7 with respect to section 8 (A):

(1) species of signal from the reporter of a complex: an optical signal

(2) species of morphological change: mitotic index

(3) species of agent that causes morphological change: colchicine

(4) species of compound: small molecules

(5) species of reporter: the reporter is a substrate for an enzyme; if additional specificity is required, then the luciferin substrate/luciferase enzyme pair is elected.

(6) species of cell: CHO cells (In the case of the test cells and counterpart control cells of claim 26, an election cannot be made as both cell types are required for the method described in this claim. Thus, the test cell is a recombinant cell that expresses the target transporter, whereas the control cell does not).

(7) species of distinguishable characteristics of cells: different cell surface markers (e.g., antibody-recognizable natural or heterologous epitopes)

(8) species of cellular morphology: cell shape

(9) species of marker on the surface of cells: this is covered in (7); thus, the election here is also an antibody-recognizable natural or heterologous epitope.

(10) species of epitope (for claim 32): a single species cannot be elected as the claim is directed to methods in which different cells bear different epitopes.

(11) species of label (for claim 38): the different reporters on different complexes are different fluorophores.

(12) species of enzyme substrate (for claim 39): luciferin

(13) species of pharmaceutical agent: Applicants are unable to discern distinct species. Further clarification is requested concerning what species the Examiner is contemplating.

(14) species of complex and modified complex: Applicant's are unable to chose a species as these are two separate elements of the claim that are both required as they have different functions.

(15) species of carrier-type transport protein: organic anion transporter.

(16) species of endogenous protein: organic anion transporter.

(17) species of test compound: As indicated in the foregoing amendment, there is an error in this claim; the claim should refer simply to "compound" rather than "test compound". Thus, the election is the same as in (4), i.e., small molecules.

(18) species of linker: cleavable linker

(19) species of detection: fluorescence microscopy

(20) species of small molecule: Applicants cannot choose a specific small molecule because the method involves the screening of libraries of complexes. Thus, there will necessarily be different species of small molecules.

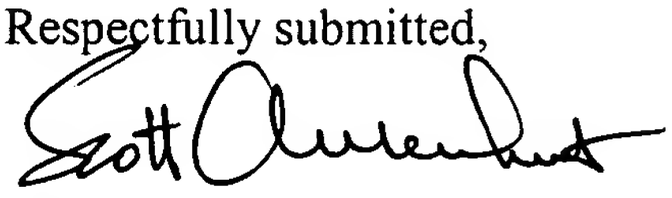
(21) species of peptide: Applicants cannot choose a specific peptide because the method involves the screening of libraries of complexes. Thus, there will necessarily be different species of peptides.

Of the elected claims from Group I, claims 1, 2, 25, 26-28, 35, 36, 41-46, 49, 51, 53, 54, 56, 57, 59-61, 64-66 and 68 read on the elected species.

If the Examiner believes a telephone conference would expedite

prosecution of this application, please telephone the undersigned at 303-571-4000.

Respectfully submitted,



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